

A Riser Basin is an earthen embankment and excavated area used to capture sediment and prevent it from leaving the construction site and entering offsite jurisdictional areas or adjacent properties. A perforated riser pipe is used in conjunction with sediment control stone for controlled dewatering, which allows sediment to settle in the basin. An emergency overflow spillway is also designed to control runoff should the riser capacity be exceeded.

AREAS OF USE:

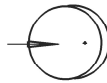
- Large drainage areas where other erosion control devices will not be adequate due to volume of runoff.

DESIGN CRITERIA:

- Drainage area should be no more than 100 acres.
- Basin should be located in area where access can be maintained for the life of the basin.
- Minimum volume is 3600 cubic feet per acre of drainage area.
- Minimum surface area is 435 square feet per cfs of Q_{10} peak inflow.
- Minimum length to width ratio is 2:1 with a maximum of 6:1.
- Minimum depth is 2 feet.
- Minimum dewatering time is 24 hours.
- The principal spillway (riser/barrel pipe) must be able to convey the peak runoff from the 2-year storm, with the water's surface at the crest elevation of the emergency spillway.
- Emergency spillway must convey the peak runoff from the design storm with a minimum 1 foot of freeboard.
- A minimum of 3 baffles shall be installed in the riser basin.
- Basin design life should be 3 years.

CONSTRUCTION SPECIFICATIONS:

- Embankment and surrounding areas should be stabilized with vegetation following installation.
- Install a minimum of 3 coir fiber baffles in the basin, with a spacing of $\frac{1}{4}$ the basin length.
- Maximum dam height is 15 feet. Dams exceeding 15 feet in height and impounding 10 acre-feet or more become subject to the NC Dam Safety Act. (Height is measured from the top of the dam to the lowest point on the downstream toe. Volume is measured at the top of the dam.).
- Minimum barrel size is 15 inches for corrugated metal pipe to reduce potential from failure due to debris or blockages.
- The cross section area of the riser should be 1.5 times that of the barrel.
- Plate emergency spillway with Class B Stone as specified on the plans.
- Use Class B Stone for anti-flotation for the riser and barrel pipes.

**MATERIAL SPECIFICATIONS:**

- Embankment shall be suitable fill material.
- Sediment control stone shall be No. 5 or No. 57 stone, and should meet the requirements of Section 1005 of the Standard Specifications.
- Class B Stone shall meet the requirements of Section 1042 of the Standard Specifications for Plain Rip Rap, Class ____.
- Perforated Riser and Barrel shall be corrugated metal pipe, and in accordance with Section 310 of the Standard Specifications.
- Baffles shall meet the requirements of the Coir Fiber Baffle Special Provision.

PAYMENT:

• Installation of measure:	
Silt Excavation	Cubic Yard
Sediment Control Stone	Ton
Riprap, Class ____	Ton
____"x____"x____" Perforated C.S. Pipe Tee Riser, ____" Thick	Each
Coir Fiber Baffle	Linear Foot
• Silt cleanout of device:	
Silt Excavation	Cubic Yard

MAINTENANCE:

- Inspect basin and riser on a regular basis and after every significant rainfall event (1/2 inch or greater).
- Inspect riser for proper operation. Remove debris from around riser or the trash rack.
- Remove clogged stone where possible.
- Inspect barrel for seepage around pipe at outlet.
- Inspect embankment, baffles, emergency spillway, and outlet for erosion damage.

TYPICAL PROBLEMS:

- Spillway and/or embankment eroded due to inadequate vegetation.
- Spillway and/or embankment erosion due to side slopes being too steep.
- Elevation of riser pipe and emergency spillway too high in relation to the top of dam.
- Lack of anti-flotation measure on the riser.
- Inadequate outlet protection on the riser pipe.
- No access provided for cleanout.
- Material stockpiled next to measure without adequate erosion control measures.
- Equipment unable to reach into middle of basin for silt removal.
- Safety concerns for humans and animals.